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ABSTRACT

An inservice development program was designed to insure that teachers acquire skills crucial for the operation of an individualized program, that these skills be acquired in a relatively short time, and that transfer be made to the classroom setting. The program consisted of (1) two preservice conferences covering information on materials organization, room arrangement, computer services, individualizing the student's programs, tutoring and counseling skills and (2) inservice consultant services. Behavioral objectives were written to be achieved in the conference setting and performance criteria developed to define desired classroom behaviors. Materials were presented as modules consisting of sets of objectives and activities which could be completed independently or with partners or small groups; they included written material, filmstrips, slides, and problem-solving games. Training conference activities incorporated the social learning techniques of scheduled reinforcement, imitation, and successive approximations. The use of consultants as change agents provided the means for individualization of the affective variables. Consultants visiting a teacher's classroom identified and reinforced some desired behaviors and aided in the acquisition of others through such techniques as review and supplementation of conference materials, reinforcement of approximations of appropriate behavior, and several types of modeling procedures. (JS)

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A PROGRAM OF TEACHER DEVELOPMENT FOR A SYSTEM OF INDIVIDUALIZED EDUCATION

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In the fall of 1967 a program of individualized education was introduced in thirteen school districts throughout the United States. The program, Project PLAN, was developed by the American Institutes for Research, the Westinghouse Learning Corporation, and teachers from the cooperating school districts. Project PLAN differs from the usual instructional program in its classroom organization, materials, method of instruction, patterns of curriculum, and its definition of the roles of the teacher and the student. Since the project required such comprehensive changes in the school's program, one of the most important components of the project became the program for teacher development. A Title III ESEA grant (Shanner, et al., 1967) provided the means for designing, writing, implementing, and evaluating a program of teacher development for individualized education using PLAN as the prototype system.

Need for Teacher Change. The first year PLAN was implemented in the public schools, the teachers began teaching with a minimum of training in specific skills relative to the PLAN system of individualized education. During that year, the activities in which teachers participated in the PLAN classrooms were recorded and analyzed by the consultants from the teacher development staff. These data were studied and compared with the definition of teacher behavior implied by the model of instruction in Project PLAN. This comparison of theoretical and empirical aspects provided a more realistic description of the teacher role. From this description the objectives of the teacher training program were derived.

The data from the classrooms revealed that during the first year of the project, teachers spent the largest amount of time during the school day in organizational and managerial activities. The description of teacher activities defined as desirable by PLAN included tutoring, counseling, and instructing students in the techniques of managing their own behavior. The actual time teachers spent in these activities was minimal. This meant a new emphasis for all teachers and in most cases the acquisition of new skills. The problem for the teacher development program was identified as:

1. the need to insure that certain skills related to individualized instruction were acquired by all trainees
2. the limitation of time for training teachers in the skills and the subsequent transfer to the classroom setting.

The tasks for the teacher development staff could then be outlined as finding means of:

1. helping teachers modify skills in their present repertoires of behavior
2. helping teachers acquire new skills
3. reinforcing the procedure of acquiring new skills and modifying current skills
4. helping teachers maintain the new behaviors once they were acquired
5. extinguishing behaviors which are viable in a regular classroom setting but not in a PLAN classroom setting.

Choosing a Theoretical Base for Teacher Change. With the problem identified, the next step was to find the best method to use to train the teachers. Several possible approaches for helping teachers learn new behaviors were examined and rejected by the PLAN consultants. The first two were largely cognitive approaches to learning and the third approach was one form of reinforcement theory (Hill, 1965).

One possible cognitive approach was the usual type of professional conference where all the personnel responsible for PLAN would inform the teacher trainees about the theoretical and developmental aspects of PLAN and discuss some implications for the teacher role. The setting would be arranged for a series of symposia or general assemblies. The assumption made in this approach is that there is a transfer of learning from the information dispensed at the conference to the classroom setting. However, the assumption that a transfer will take place is questionable (Travers, 1963). A second difficulty with this approach is the inability to determine the extent to which any piece of information is understood by the teacher trainee. It would not be possible to measure the amount and type of learning without specific objectives and a method of testing the objectives. This type of conference was rejected because we needed a system which would help the PLAN consultants measure their effectiveness as instructors of teachers and one which would maximize the potential of transfer to the classroom setting.

The next cognitive approach which was considered was a phenomenological approach to instruction--that of presenting several alternatives to the

learner, or teacher trainee. This method permits the teacher trainee to select those alternatives which could be incorporated in his behavior repertoire. The choice of the alternatives is determined by the congruity with the current beliefs, practices and values of the teacher trainee. This approach was also rejected by the PLAN consultants since one of the goals of training was to be sure that certain skills were acquired by all teachers. These were the skills identified as most crucial in the operation of such a system of individualized education.

We then looked to a different category of approaches to learning--that of programs based on reinforcement theories. With the problem of helping teachers acquire, maintain, improve or decrease certain specific behaviors, it was clear that a comprehensive conceptualization of reinforcement theory would be needed. This comprehensiveness was suggested by the work of Bandura and Walters (1967) and Ullman and Krasner (1969). Some behavior could be maintained through a simple use of social reinforcement; some behavior could be improved through successive approximations; other behavior could be acquired through imitation. A program based on some form of reinforcement theory was concluded to be the most appropriate approach for the following reasons: (1) the techniques suggested several approaches to insure that certain skills were acquired by all trainees, (2) the specificity of the techniques compensated for the short period of time for achievement and the subsequent transfer to the classroom setting. Strict operant or classical conditioning were both rejected as being too limited to produce the broad scope of complex behaviors required in a public school setting. For example, this type of conditioning would require a larger number of instructors and more controlled setting than could be expected in the social system of a public school.

The Training Program. The training program which the staff developed had two phases: (1) the definition of the specific behaviors for the teacher to acquire, (2) presentation of the program to provide for acquisition, improvement and maintenance of the behaviors. The program included pre-service conferences and in-service consultant services.

1. The Definition and Statement of Specific Behaviors. The definition of the behaviors was accomplished by writing instructional objectives to be achieved in the training setting. Each objective was then restated as a

performance criterion to define the behavior in the classroom. The performance criterion is a restatement of the instructional objective with the addition of the condition of the behavior. The separation of the objectives into instructional objective and performance criterion was less confusing to the teacher trainees. Thus, if a teacher trainee was required to learn a specific skill in the teacher training program, an objective was written which would indicate how the teacher trainee would study and be tested on the skill during the training session. An example of such an instructional objective would be:

> After reading a case study of a student, you will be able to list A.) the steps you might follow and B.) possible questions you might ask for each step when evaluating a Program of Studies.

This objective would be studied and tested at the conference. To increase the chances for transfer to the PLAN classroom setting the objective was translated for the teacher trainee to a performance criterion. The attempt was to indicate to the teacher trainee the conditions under which the behavior would be performed. Following is a performance criterion for the objective stated above.

> Following the criteria in the instructional guide, demonstrate with two of your own students the planning of a Program of Studies for each student.

Each teacher trainee was given an individualized program with objectives to be achieved at the conference and performance criteria for the classroom. The set of objectives for training was presented as a Program of Studies and the data on achievement of the objectives stored in the computer. These data are retrievable in the format illustrated in Table 1. The performance criteria were evaluated by the PLAN consultant on visits to the classroom. This set of criteria was used during in-service planning meetings between the teacher trainee and the PLAN consultant. A summary of the teacher's achievement was available to both the teacher trainee and consultant. (See Table 2.)

2. Acquisition, Improvement and Maintenance of Behavior. The training program consisted of two pre-service conferences and in-service consultant services. The pre-service conferences included materials designed to cover three categories of information about PLAN classes (1) materials organization

and Room Arrangement, and computer services, (2) individualizing the student's programs, (3) tutoring and counseling skills. The materials were presented as modules consisting of a set of related objectives and the activities to complete those objectives. Teachers completed a test of the objectives after finishing the activities in the module or at any point they felt they had achieved the objectives. The modules could be completed independently, with a partner, or with a small group and included written material, filmstrips, slides, and problem-solving games.

The activities completed by each teacher trainee at the training conference, incorporated the social learning techniques of scheduled reinforcement, imitation, and successive approximations. An example of a training TLU is illustrated in Table 3.

By providing a variety of activities to shape the desired behavior, teachers, who had skills which approximated the desired skill in their repertoire were encouraged to choose those reading activiites which would clarify and shape the skill. Those teachers who did not have any approximation of the skill in their repertoire, were encouraged to complete both the reading activities and the imitation activities in order to acquire the behavior.

The in-service program was focused on the set of performance criteria. The PLAN consultant visited each teacher's classroom to identify those behaviors which the teacher trainee was demonstrating. These behaviors were reinforced by the PLAN consultant.

The behaviors stated in the performance criteria and not demonstrated in the PLAN classroom became the basis for the in-service program with that individual teacher. To help the teacher trainee acquire these behaviors, several techniques could be followed. (1) The conference material could be reviewed or supplemented with other materials. (2) Approximations of the appropriate behaviors could be reinforced. (3) Some type of modeling procedure couod be used to help the teacher acquire the appropriate behavior. None of these techniques is mutually exclusive. The decision as to which or to what extent any one technique was used was made by the PLAN consultant. For example, a teacher trainee who had not been doing any special interest tutoring and finally began to do some, even though using poor techniques, would be reinforced for the tutoring but not for the techniques. This would then be an appropriate time to introduce some supplementary written materials

on tutoring skills and techniques. To further help the teacher trainee acquire the appropriate techniques, the PLAN consultant could model the procedure himself (observational modeling), provide a description of another teacher's approach (symbolic modeling), or take the teacher trainee to observe another model (observational modeling).

Individualization and Involvement. The description of the project stated thus far has been simplified. There are obviously many variables in the affective dimension to consider when helping individuals change their behavior. Two of these variables which have been most important to the teacher development staff have been the individualization of the techniques used by the PLAN consultant and the involvement of the teacher trainee in decisions about his own behavior.

The first factor, the individualization occurred through the unique relationship between each teacher and the PLAN consultant. The training program was designed to require teacher-consultant interaction. The reinforcement during these interactions was provided through the use of verbal and non-verbal reinforcement. The number of interactions and type of reinforcement during the interactions were individualized by the PLAN consultant.

It is recognized that a program such as described in this paper could be very mechanistic. However, through the teacher-consultant relationship the opportunities for considerations of the affective dimension are really greater than they would be in a system without the organization for this unique relationship.

The second factor, the involvement of the teacher trainee in decision making illustrates one distinct difference between the application of operant conditioning techniques and social learning techniques. The teacher agreeing to participate in the project read and understood the performance criteria for teacher behavior and expressed some kind of commitment to the expectations. Teachers were aware that their behavior was to be changed, knew the ways it should be changed and what the terminal behavior demonstrated in the classroom should be. The teacher trainee and the PLAN consultant were then involved in cooperative decisions about procedures to use to facilitate the change. The teacher trainee was ultimately responsible for his own behavior change and the PLAN consultant was merely the facilitating agent. Once the behaviors were acquired, the PLAN consultant worked to help the teacher trainee maintain the

appropriate behaviors. Because the behaviors were essential to the classroom operation the teachers continued to demonstrate the behaviors. In other words, the behavior had pay-off for the teacher and was thus maintained.

An example of a behavior which became reinforcing for a teacher is the use of the computer for storage and retrieval of information. One purpose of the computer in the PLAN system is to eliminate the clerical task of keeping track of 30 students all with different sets of objectives. If a teacher were to keep complete records for all students there would be little or no time for instructional activities. Once the teacher trainee understood how to report information to the computer and how to retrieve the information the advantages in time saved and more accurate records reinforced the teacher continuing to use the computer for this purpose. The biggest job was in assisting the teacher to learn the behavior. Once the behavior was learned, the maintenance role of the consultant could be diminished in proportion to the pay-off of the behavior for the teacher.

Summary. It was concluded that the application of social learning concepts to the training program best suited the goals of the program which were to insure that teachers acquired certain crucial skills for operation in an individualized program, that these skills be acquired in a relatively short time and that transfer be made to the classroom setting. The use of successive approximation, reinforcement and imitation provided the strongest basis for achieving these goals.

The use of PLAN consultants as the agents of change provided the means for individualization of the affective variables.

The goals of the training program are not ends in themselves. A creative teacher will complete the training program as outlined here and with the help of the PLAN consultant find many individual ways to complement and extend the skills acquired during training. The limit to teacher effectiveness and individualization is not controlled by the program but by the extent to which a teacher is able to understand the differences among students and to individualize instruction with each student. The more effective the teacher is in accomplishing this, the more unique each teacher's role will become.

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TABLE 1

PLAN

PROGRAM OF STUDIES AND PROGRESS REPORT FOR ANDERSON JAMES

SCHOOL BISHOP MEMORIAL HIGH CONSULTANT MRS. SUSAN CARTER LEVEL: SECONDARY

OBJECTIVE	DATE FINISHED
The teacher is able to catalogue learning material to meet the criteria presented in the Materials Organization Guide.	August 27
The teacher is able to arrange subject matter centers which include catalogued materials, furniture, and learning equipment to meet the criteria presented in the Materials Organization Instructional Guide.	August 27
The teacher is able to identify teacher monitored materials as defined in the Materials Organization Guide and give reasons for their identification.	August 27
The teacher is able to instruct students in understanding the rationale, as defined in the Materials Organization Instructional Guide, behind their locations of work, location of learning materials, and equipment.	August 27
Planning the Program of Studies and the Individualized Schedule a. After reading a case study of a student, you will be able to a) list the steps you will follow and b) list possible questions you might ask for each step when setting up a Program of Studies, according to the procedures described in "Planning the Program of Studies." b. Based on the "Description of Student-Managed Behavior", you will be able to place sample student behaviors on the continua and assess student managed behavior using a checklist. c. Using the sample form "Behavior Measures Relative to Student-Managed Behavior," you will be able to recognize those behaviors which need modification and suggest possible questions for discussion at the teacher-student counseling session.	

TABLE 2

Teacher's Name_____

School_____

Consultant_____

MATERIALS ORGANIZATION AND ROOM ARRANGEMENT

OBJECTIVE	COMPUTER RESULTS/DATE
1. The teacher is able to catalogue learning material to meet the criteria presented in the Materials Organization Guide. PERFORMANCE CRITERION 1. The student is able to locate and return TLU related material with ease. a. Primary: all materials are catalogued so as to meet the criteria presented in the Materials Organization Guide. b. Intermediate/Secondary: (see above) (Five students are randomly selected. Using a TLU and a checklist a consultant notes these five students easily locate and return material and equipment.)	*Consultant records printout information here or consultant certify and date.* OBSERVATION DATES First Second Third *These dates correspond to the five page observation and comment record to be used with the teacher.* Criterion Met_____(date) Comments:

TABLE 3

OBJECTIVE #1: AFTER READING A CASE STUDY OF A STUDENT, YOU WILL BE ABLE TO LIST A.) THE STEPS YOU WILL FOLLOW AND B.) POSSIBLE QUESTIONS YOU MIGHT ASK FOR EACH STEP WHEN EVALUATING A PROGRAM OF STUDIES (POS), ACCORDING TO THE PROCEDURES DESCRIBED IN "PLANNING THE PROGRAM OF STUDIES."

PERFORMANCE IN THE CLASSROOM: Demonstrate with two of your own students the planning of a POS, according to the procedures described in "Planning the Program of Studies."

USE	DO
1. Instructional Guide, "Planning the Program of Studies."	1. Read the Introduction and Procedures, pages 1 through 5.
2. Field Consultant	2. Discuss the following topics related to the instructional guide: a. What is the POS? b. What procedures would you follow in planning the POS?
3. Tape of case study (either intermediate or secondary). Tape recorder Written version of case studies in Instructional Guide, Part 3, page 15 or part 4, page 16.	3. Listen to the tape of the case study appropriate for your level. You may want to follow the written version at the same time. Study the corresponding suggested POS for the student.
4. Suggested POS for the students in each of the case studies, Instructional Guide, part 5 or 6.	4. List the procedures you would use with the student in evaluating the POS.
5. Audio tape, "Eavesdropping on the Planning of a POS", Intermediate or Secondary. Tape recorder Instructional Guide, "Planning the Program of Studies." Partner if desired.	5. Listen to the tape appropriate for your level. Using the checklist on page 5 of the instructional guide, check the procedures as they occur on the tape.